

ABSTRACT:

Edison Demonstration of SmallSat Networks (EDSN) is the first demonstration of a distributed system of nano-scale satellites to use intersatellite communication while working towards common science and technology goals. This unique mission configuration poses key technological challenges, including multi-satellite deployment, close proximity flight, cross-satellite communications, and simplified and effective operations. Tackling these challenges has required extensive development on EDSN's guidance navigation and control (GNC) and flight software systems.

Although use of COTS component is common to the CubeSat community, it is prudent to point out that utilization of these components enables EDSN to accomplish its objectives at relatively low cost (~\$12M) in comparison to current multi-satellite missions capable of cross-link communications. EDSN is on cost and schedule with flight unit shipment in August 2013. This paper aims to update the community of EDSN's progress since SRR and speaks to the approach EDSN has taken to resolve some of the main issues revolving distributed system of nano-scale satellites.